



## First records of genus *Metacyrba* F. O. Pickard–Cambridge, 1901 (Araneae: Salticidae: Dendryphantini) from Colombia

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### General Note



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### ABSTRACT

The jumping spider genus *Metacyrba* F. O. Pickard–Cambridge, 1901 (Salticidae: Marpissinae) is recorded for first time from Colombia, with the species *Metacyrba punctata* (Peckham & Peckham, 1894) in mangrove forest and *Metacyrba venusta* (Chickering, 1946) in humid forest from the Córdoba department. A distribution map with both new and previously published records and ecological comments are included.

**Keywords:** Marpissinae, Microhabitat, Zoogeography, Córdoba, Colombian Caribbean.

## 1. INTRODUCTION

The Marpissina (sensu<sup>1</sup>) are a subtribe of Dendryphantini that have been scarcely studied, however, marpissoids are well supported by molecular data;<sup>2, 1</sup>. Currently the subtribe is represented by nine genera and 110 described species: *Balmaceda* Peckham & Peckham 1894, *Empanda* Simon, 1903, *Fuentes* Peckham & Peckham 1894, *Maevia* C. L. Koch 1846, *Marpissa* C. L. Koch, 1846, *Mendoza* Peckham & Peckham 1894, *Metacyrba* F. O. P.–Cambridge 1901, *Platycryptus* Hill, 1979, *Psecas* C. L. Koch, 1850;<sup>1, 3</sup>. The *Metacyrba* genus is a group of jumping spiders, which is only known from America, some species such as *M. punctata* (Peckham & Peckham, 1894), *M. taeniola* (Hentz 1846) and *M. venusta* (Chickering, 1946) widely distributed, and other species more restrained in their distribution, currently the genus is represented by eight species;<sup>4, 5, 2, 3</sup>. Here, we present a first record of the *Metacyrba* genus in Colombia with the species *M. punctata* and *M. venusta* from the department of Córdoba in the Colombian Caribbean and we include ecological comments on the species reported.

## 2. MATERIALS AND METHODS

The material examined was deposited in the collection of the entomology laboratory of the University of Córdoba, Montería, Colombia. Multifocal photographs of the genitalia were taken in the Microscopy laboratory of the University of Córdoba, with a HD digital camera attached to the Carl Zeiss stereomicroscope, Axiostar, and then united by the image stacking software AxioVision Carl Zeiss SE64 (Rel.4.9.1. SP2). Measurements were taken using a micrometer attached to a Carl Zeiss stereomicroscope, Axiostar, in conjunction with software AxioVision Carl Zeiss SE64 (Rel.4.9.1. SP2). The map was prepared in the Geographic Information System QGIS "Girona" version 3.0;<sup>6</sup> with raster files from NaturalEarth©. The measurements are in millimeters. The variability is based in four females. Morphological terms follow Galiano (1963).

**Abbreviations used in the text are.** TL = total length; AERW = anterior eye row width; PERW = posterior eye row width; OQ = ocular quadrangle; LOQ = length of ocular quadrangle (ALE PLE inclusive); PMEP = posterior median eye position (as ratio: distance of ALE–PME/ ALE–PLE); CL = caparace length; CW = caparace width; CH = caparace height (at ~ higher high); AL = abdomen length; F = femur; P = patela; T = tibia; M = metatarsus; CP = central piece; CD = copulatory duct; FD = fertilization duct; S = spermathecae.

## 3. RESULTS

### Taxonomy

Salticidae Blackwall, 1841

Salticinae Blackwall, 1841

Dendryphantini Menge, 1879

Marpissina Simon, 1901

### *Metacyrba* F. O. Pickard–Cambridge, 1901

(Figures 1–4)

***Metacyrba* F. O. P.–Cambridge 1901: 252, Type species: *Attustaeniolus* Hentz 1846: 353.**

### Diagnosis

Can be distinguished by general appearance that varies little among species except in size; in a few cases, abdominal markings are distinctive; the upper thoracic area of the caparace is an extended flat plateau in the same plane as the OQ with the posterior declivity falling abruptly and no more than 20% of the carapace length; the OQ is densely covered with small iridescent scales; the thoracic area having fewer and larger iridescent and/or white scales; and the ventral margin of the lateral edges of the carapace is lined with a conspicuous row of close-set elongate white scales;<sup>2</sup>.

### Description

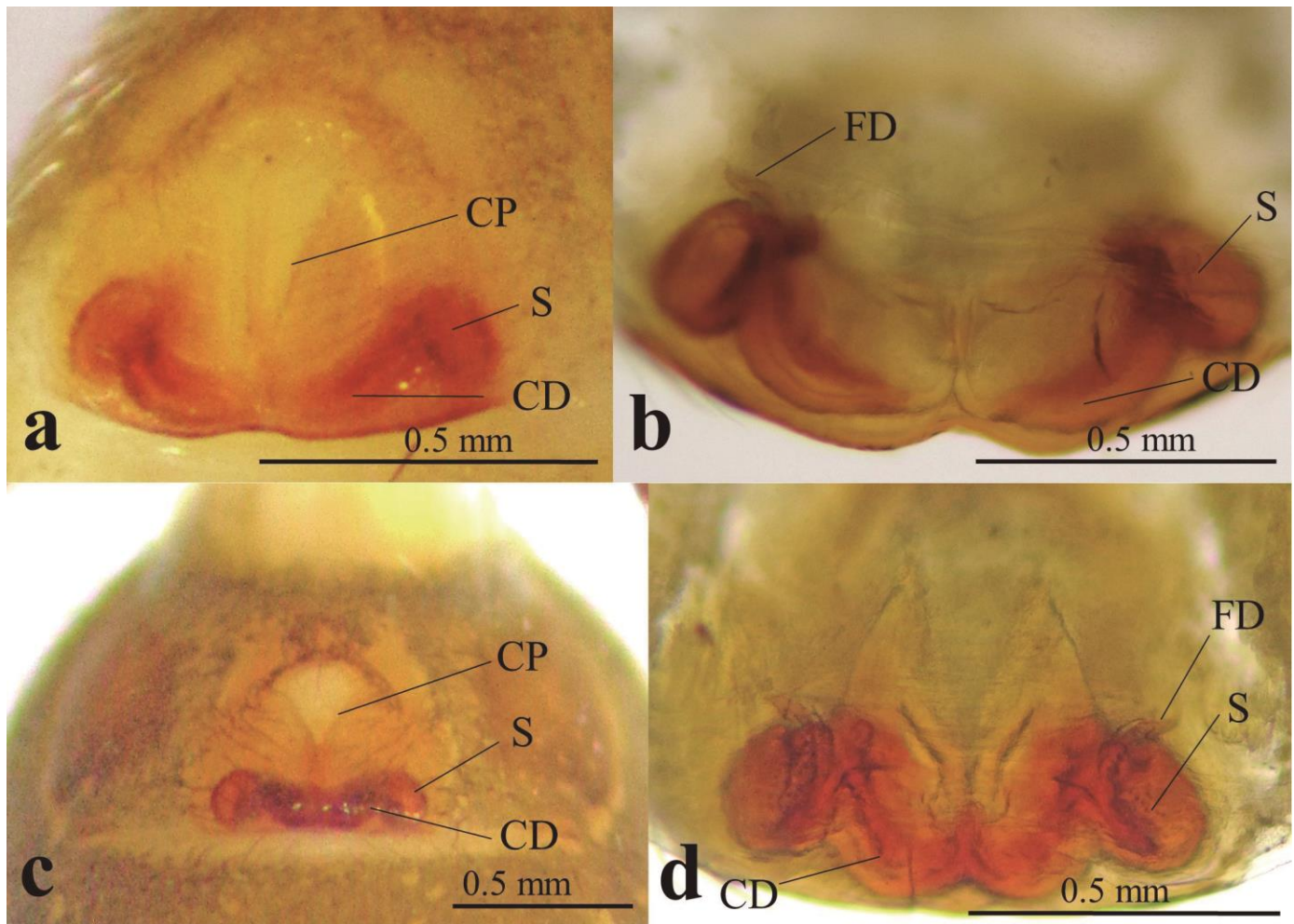
Black body; caparace rugulose, without any decided central depression behind the posterior eyes,<sup>8</sup>. The upper thoracic area of the caparace is an extended flat plateau in the same plane as the OQ with the posterior declivity falling abruptly and no more than 20% of the carapace length; the OQ is much broader than long and is densely covered with small iridescent scales; the thoracic area having fewer and larger iridescent and/or white scales, and the ventral margin of the lateral edges of the carapace is lined with a conspicuous row of close-set elongate white scales;<sup>8,2</sup>. Sternum much attenuate in front between the anterior coxae, dilate behind.

Abdomen with two longitudinal, narrow lines, composed of white dots or abbreviated lines, <sup>9</sup>. Leg I much incrassate; femur I much compressed, tarsi dark rufous or blackish; <sup>9,8</sup>.

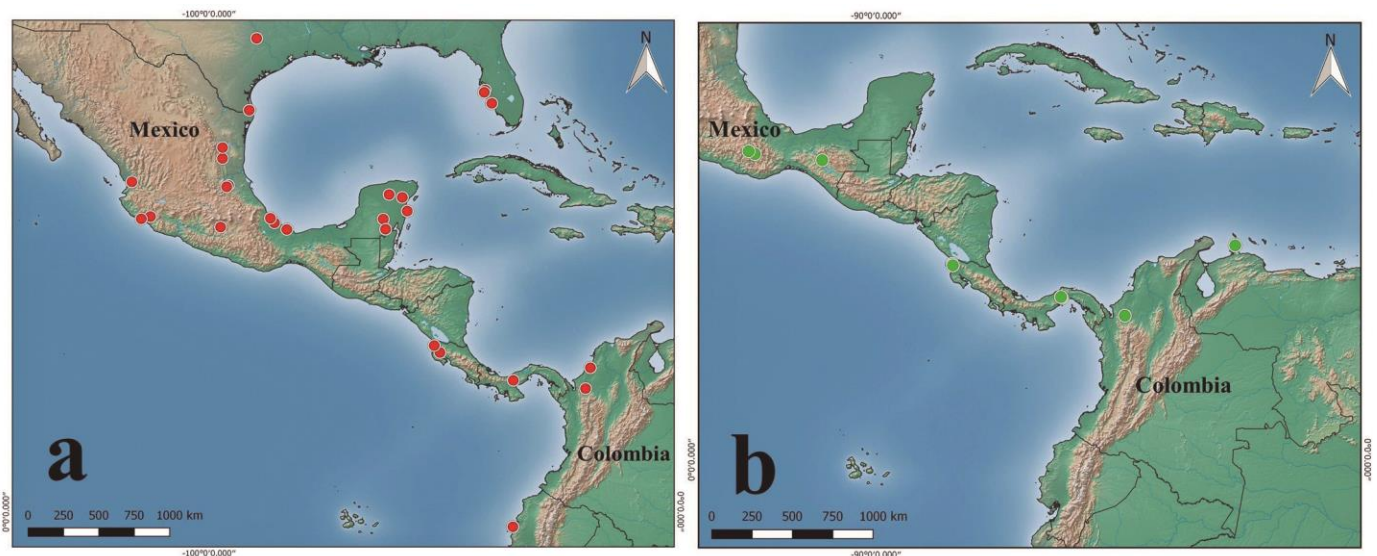


**Figure 1** Habitus. (A) Female *Metacyrba punctata* (Peckham & Peckham 1894), Dorsal view; (B) Female *Metacyrba punctata* (Peckham & Peckham 1894), Ventral view; (C) Female *Metacyrba venusta* (Chickering 1946): 5, Dorsal view; (D) Female *Metacyrba venusta* (Chickering 1946): 5, Ventral view.



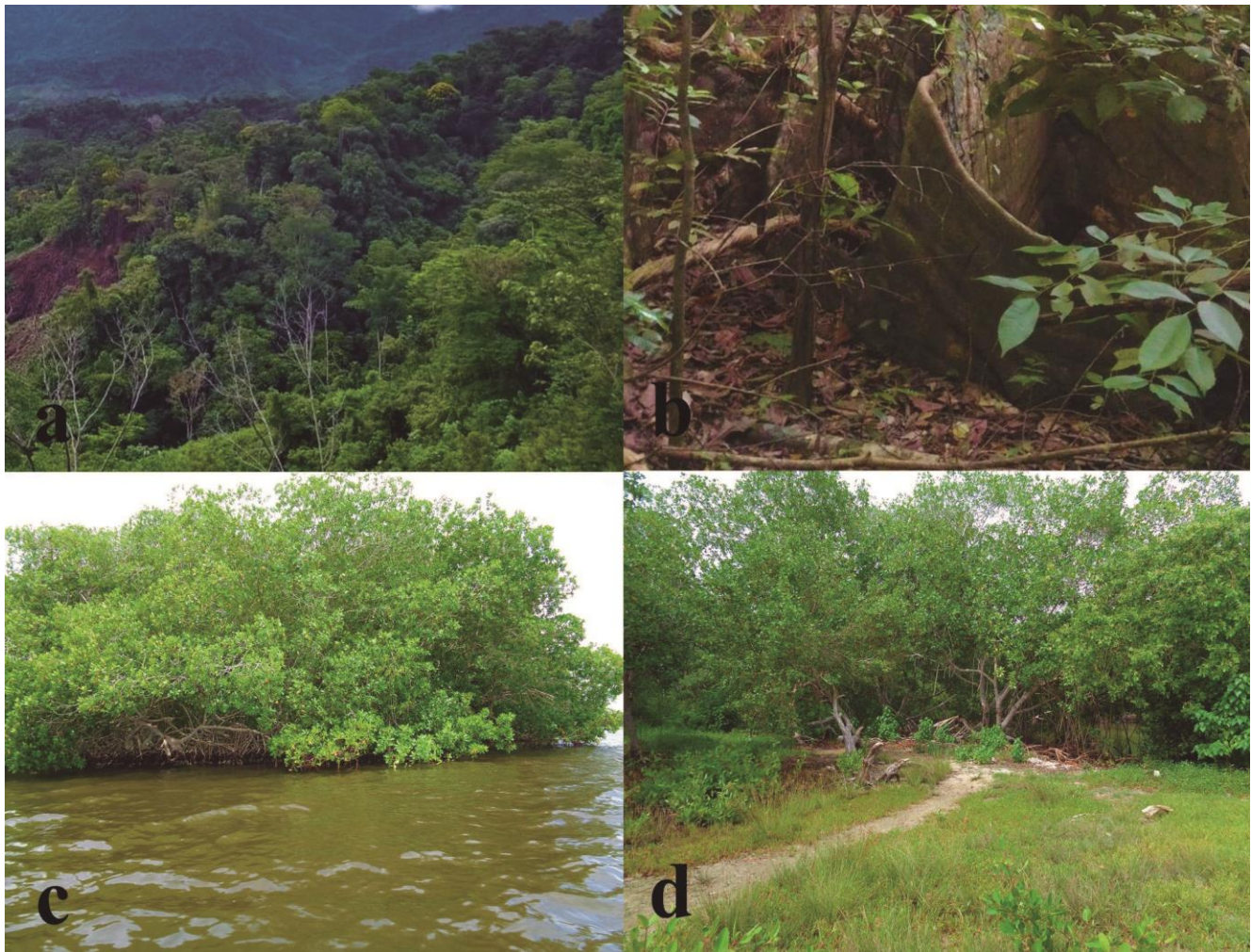


**Figure 2** Aspect epigynum. **(A)** Epigynum ventral view, *Metacyrba punctata* (Peckham & Peckham 1894); **(B)** Epigynum dorsal view, *Metacyrba punctata* (Peckham & Peckham 1894); **(C)** Epigynum ventral view, *Metacyrba venusta* (Chickering 1946); **(D)** Epigynum, dorsal view, *Metacyrba venusta* (Chickering 1946).



**Figure 3** known distribution in America. **(A)** *Metacyrba punctata* (Peckham & Peckham 1894); **(B)** *Metacyrba venusta* (Chickering, 1946).





**Figure 4** Habitat reported in this study. (A) Humid forest of TuisTuis, Tierralta, Córdoba; (B) Trunks and leaf litter, Humid forest of TuisTuis, Tierralta, Córdoba; (C) Fragment of mangrove forest, bay of Cispatá, San Antero, Córdoba; (D) Fragment of mangrove forest, Punta Nisperal, San Antero, Córdoba.

***Metacyrba punctata* (Peckham & Peckham, 1894)**

(Figures 1–4)

*Metacyrba punctata* (Peckham & Peckham, 1894): Edwards, 2005: (Male and female syntypes deposited in MCZ from Central America with no other data. Lectotype male and paralectotype female designated, not examined).

*Balmaceda punctata* Peckham & Peckham 1894: 102, pl. 8, f. 8

*Balmaceda punctata*, F. O. P.–Cambridge 1901: 297, pl. 29, f. 2–3

*Fuentes punctatus*, Banks 1929: 63.

*Breda punctata*, Chickering 1946: 44.

*Metacyrba punctata*, Barnes 1958: 35, f. 54

**Material examined**

1 female from Colombia, Córdoba, San Antero: Punta Nisperal. This locality can be associated with approximate coordinates of [9°23'33.91"N, 75°47'2.82"W], [2 m], 23 Apr 2018, mangrove forest, manual collection. E. Bedoya–Roqueme leg. (LEUC–OARA–185). 1 female from Colombia, Córdoba, San Antero: Caño Mocho. This locality can be associated with approximate coordinates of [9°24'41.9"N, 75°47'54.1"W], [2 m], 23 Apr 2018, mangrove forest, manual collection. E. Bedoya–Roqueme leg. (LEUC–OARA–185). 1 female from Colombia, Córdoba, Tierralta, Tierralta: TuisTuis. This locality can be associated with approximate coordinates of [8°2'2.881" N, 76°5'29.993" W], [178m], 3 Dec 2014, humid forest, manual collection, E. Bedoya–Roqueme leg. (LEUC–OARA–200).

## Diagnosis

According to;<sup>2</sup> the epigynum is very similar to *M. floridana* and *M. taeniola*, but has the copulatory duct heads much longer than in the former species possibly corresponding to the embolic flange length of the male, and the epigynum is not as wide as in the latter species (we do not notice differences about it, see Figures 2A–2B). Also, according to this author, the female can be distinguished from those of its, similar *M. floridana* Gertsch, 1934, by the color pattern of the abdomen and color of legs I, in carapace proportions slightly wider, generally the three pair of large spots on the abdominal dorsum of both sexes will distinguish this species (Figures 1A–1B).

## Description

Cephalothorax with cephalic part dark brown to black and with thoracic part brown to dark brown. Eyes of anterior row sub-contiguous, with AME twice the diameter of the ALE; The LME one-third of the diameter of ALE; PER wider than anterior and eyes equal to the ALE in size; ocular area slightly wider than long and occupying 45% of carapace length; the second row is half-way between the first and third rows. (Figures 1A–1B);<sup>10, 11</sup>. Clypeus clothed with white hairs;<sup>10</sup>; Chelicerae brown (Figures 1A–1B). Labium and endites dark brown, with pale tips. Sternum brown. Dorsum of abdomen from grayish black to black background with striated pattern of white hairs and with two large pair of white to yellow spots at beginning of posterior half, one pair is behind the other, and are followed by a transverse spot that reaches lateral sides of abdomen;<sup>10, 11, 2</sup>(Figures 1A–1B). Abdominal venter pale to grey or grayish brown and margined with a longitudinal white band; sometimes not so obvious (as<sup>11, 2</sup> have observed) (Figures 1A–1B). Legs I yellowish orange. First legs with the femur and tibia heavily thickened;<sup>10</sup>. Legs II–IV all yellow to yellowish orange. Spines: Leg I: F= p: 1–1–1; P= 1p–1p; T= 0–1p–1p, d: 0–0–1p, v: 1r–1r; M= v:2r–2r. Leg II: F=d: 1–1–1, p:0–0–1; P=0; T=v:0–0–1r. Leg III: F=d:1–1–1; T=1p–1p; M=v:0–2r. Leg IV: F= 0; P=d:1–1–1, T=d:1p–1p; M=v:1r–2r.

## Measurements (three females)

TL= 4.70–6.30; AERW = 1.15–1.17; PERW= 1.10–1.11; LOQ= 0.91–0.93; PMEP= 0.318; CL = 2.19–2.20; CW = 1.50–1.57; AL= 3.25–3.27; eyes of the second row separated from the ALE by 0.31–0.33 mm and from the PLE by 0.28–0.29 mm.

## *Metacyrba venusta* (Chickering, 1946)

(Figures 1–4)

*Parkella venusta* Chickering, 1946: 49, f. 27–30. (Holotype male of *P. venusta* in MCZ from Panama. Canal Zone. Ft. Sherman, Aug 1939, not examined).

*Parkella fusca* Chickering, 1946: 51, f. 31–32. (Holotype female of *P. fusca* in MCZ from Panama. Canal Zone. Canal Zone Biological Area, Jul 1934, not examined).

*Dendryphantes franganilloi* Caporiacco, 1955: 441, f. 79. (Holotype female of *D. franganilloi* from Venezuela, Falcón. Pueblo Nuevo, Oct 1948, Marcuzzi leg. in MUCV (Museo de la Universidad Central de Venezuela), #XII–739, not examined).

*Metacyrba franganilloi* Ruiz & Brescovit, 2005b: 754, f. 5–6.

*Metacyrba venusta* Edwards, 2006: 207, f. 79–96, 102.

## Material examined

2 females from Colombia, Córdoba, Tierralta, Tierralta: TuisTuis. This locality can be associated with approximate coordinates of [8°2'2.881" N, 76°5'29.993" W], [178m], 3 Dec 2014, humid forest, manual collection, E. Bedoya–Roqueme leg. (LEUC–OARA–208).

## Diagnosis

The entire atrium is filled with the central piece, unlike the other species in which the central piece does not entirely fill the atrium anteriorly (Figures 2C–2D), leaving a crescent-shaped depressed area or an upside-down drop shape;<sup>12, 2</sup>

## Description

Caparace flat dorsally throughout ocular and postocular areas (with just a slight depression behind PLE) with a steep posterior declivity which begins about two thirds of the distance from PLE to posterior border (Figures 1C–1D). The cephalic part of the caparace is dark and the thoracic part is reddish brown (Figures 1C–1D). Numerous black erect bristles are dispersed on the prosoma;<sup>5</sup>; AER recurved, PER softly wider than AER, OQ wider than long, ME slightly closer to ALE than to PLE; clypeus decorated with numerous long bristles, height of clypeus equal to three twentieths of the diameter of AME ;chelicerae of moderate size,

brownish, fang groove with two small promarginal teeth and a single simple small retromarginal tooth; endites parallel, longer than wide, only moderately notched in middle of outer margin (Figures 1C-1D). Labium longer than wide, with sternal suture straight; sternum brownish longer than wide, widest at interval between second and third coxae; much narrowed at anterior end where enlarged first coxae overlap it considerably; posterior end blunt; <sup>5</sup>. Abdomen ovoid, brownish gray dorsally with two rows of faint yellowish spots bordering a clear central longitudinal stripe; unlike specimens of Florida, the spots do not join (with respect to the individuals) and, unlike the specimens of Panamá, the spots begin before, not in the posterior half (as; <sup>2</sup> has been observed in that individuals)) (Figures 1C-1D). Ventrally the abdomen is brownish with four rows of yellowish dots converging towards base of spinnerets (as; <sup>5</sup>) (Figures 1C-1D). Legs reddish brown (as Mexican specimens), the first are darkest; <sup>5, 2</sup>. Spines: Leg I: F= p: 1-1-1, d. 0-1-1; P= 0; T= v: 2r-2r-2r; M= v:0-2r. Leg II: F=d: 1-1-1, p:0-0-1; P=0; T=v:0-0-2r; M= v: 0-2r. Leg III: F=d:1-1-1, p: 0-0-1; P=0; T=0-0-1p; M=v:0-2r. Leg IV: F= d:1-1-1, p: 0-0-1; P=0, T=d: 0-0-1p; M= v:0-2r.

### Measurements (two females)

TL= 4.51-7.11; AERW= 1.55-1.58; PERW= 1.58-1.60; LOQ = 1.13-1.16; PMEP= 0.334-0.336; CL = 2.54-2.57; CW = 1.96-1.99; AL= 3.94-3.97; eyes of the second row separated from the ALE by 0.34-0.37 mm and from the PLE by 0.32-0.35 mm.

### Distribution

The species *M. punctata* is known from Costa Rica, Ecuador, Mexico, Panama, USA, and Colombia (Córdoba) (Figure 3A). The species *M. venusta* is known from Costa Rica, Mexico, Panama, Venezuela and Colombia (Córdoba) (Figure 3B); <sup>10, 2</sup>. This is the first record of this genus and species from Colombia. The specimens of *M. punctata* from Colombia were collected by hand during daylight hours in bark, associated with trees of *Rhizophora mangle* L, 1753, in mangrove forests of the bay of Cispatá, San Antero and humid forest of the municipality of Tierralta about 178 m above sea level. Similarly, *M. venusta* was collected by hand during daylight hours in humid forest of the municipality of Tierralta about 178 m above sea level.

### Ecological comments

Species of the genus *Metacyrba* have been reported occupying different types of microhabitats, under bark of trunks and under rocks, leaf litter, sometimes they are occupying woody plants and on vertical surfaces, like walls of buildings, in insular areas have been collected on rocky beaches; <sup>4,10, 8, 13, 14, 15, 5, 11, 16, 17, 2, 18</sup>. The *Metacyrba* of Colombia were collected in coastal mangrove forests and the estuary of the bay of Cispatá (municipality of San Antero) associated with bark of *Rhizophora mangle* L., and *Avicennia germinans* L., likewise, they were collected in areas of humid forest at 178 m above sea level (Figure 4).

## 4. DISCUSSION

In Colombia, efforts have been made to know the fauna of jumping spiders in neotropical ecosystems, taking into account the high values of biodiversity; most of the records correspond to areas of tropical dry forest, humid forest, savanna areas and riverside forests; currently in Colombia the jumping spider fauna is represented by 110 species and distributed in 47 genera; <sup>19, 3</sup>. In general, species of the genus *Metacyrba* have been reported occupying different types of microhabitats; <sup>4,10, 8, 13, 14, 15, 5, 11, 16, 17, 2, 18</sup>. In this study, species of the genus *Metacyrba* are reported from mangrove forests and humid forests habitats scarcely studied in the literature for this group of arachnids, presenting some variations in coloration, the specimens coming from the mangrove are darker than the wet forest (specimen illustrated in the photos), in which it can be seen that the black color of the abdomen becomes darker behind the white transverse line, while in the Mangrove specimens the black color of the abdomen is more homogeneous. The alternatives of shades of colors mentioned in the description are due to the differences presented by these specimens, which can be attributed to the intraspecific variation of the species by their distribution. With the present results, the *Metacyrba* genus is reported for the first time in Colombia, the known distribution of the species *M. punctata* and *M. venusta* towards Colombia is increased, with all these results, the fauna of jumping spiders in Colombia is represented by 112 species and 48 genera present in the different ecosystems of the country.

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### Conflict of Interest:

The authors declare that there are no conflicts of interests.



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**Edwin Bedoya-Roque**, I declare that I contributed substantially to the conception and design of the work; taxonomic identification, taking of photography, design of the maps, also for the acquisition, analysis and interpretation of data for the work; I participated in writing the work and revising it critically to provide important intellectual content; I approved the version that will be published and I agreed to be responsible for all aspects of the work to ensure that questions related to the accuracy or integrity of any part of the work are properly investigated and resolved.

**María Florencia Nadal**, I declare that I contributed substantially to the conception and design of the work, and for the acquisition, analysis and interpretation of data, the taxonomic identification; I participated writing the work and revising it critically, I contributed important intellectual content; I approved the version that will be published and I agreed to be responsible for all aspects of the work to ensure that questions related to the accuracy or integrity of any part of the work are properly investigated and resolved.

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